

Temperature TMDL Technical Process

- **Define the numerical targets for the TMDL.**
- **Characterize existing conditions.**
- **Identify sources and evaluate linkages between sources and temperature response of the river.**
- **Quantify loading capacity.**
- **Allocate loads.**

Defining the Numerical Targets

- The WQS establish the numerical targets for the TMDL.
- The WQS for most of the river prohibit or restrict temperature increases due to human activities.
- So we have to estimate temperature in the absence of human activity that affects temperature (natural or site potential).

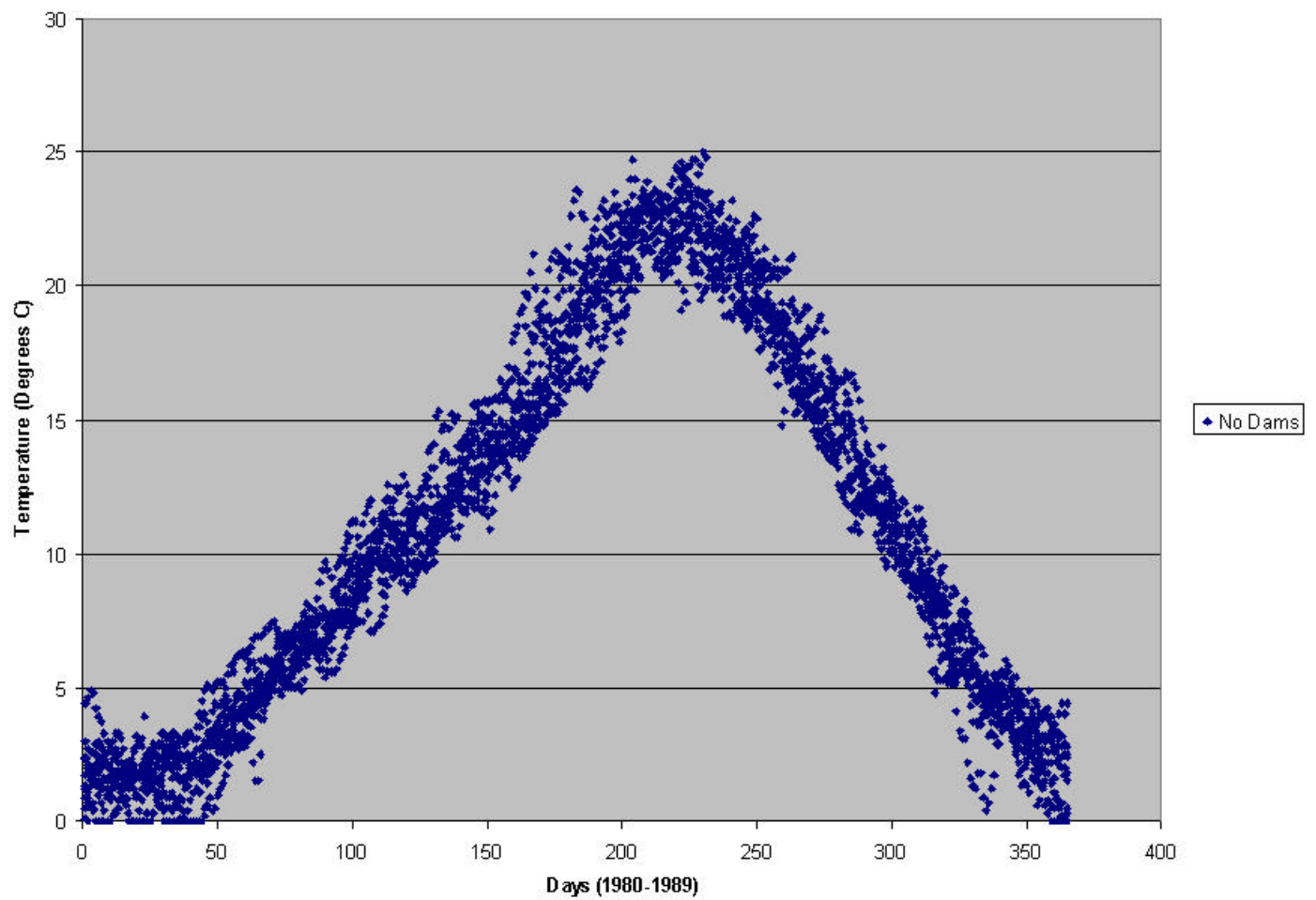
Defining Numerical Targets

- Use RBM 10 Water Quality Model to simulate the average temperature of cross sections of the river.
- Simulate 30 years of water temperature using existing meteorological and hydrological data.
- Compare simulations of natural conditions to existing conditions.

Defining Numerical Targets

- When natural conditions exceed the criteria in the WQS, the natural or site potential temperatures will be used to establish the numerical targets for the TMDL.
- This will be done for each source of heat or cause of temperature increase along the river (point sources, dams, etc.)

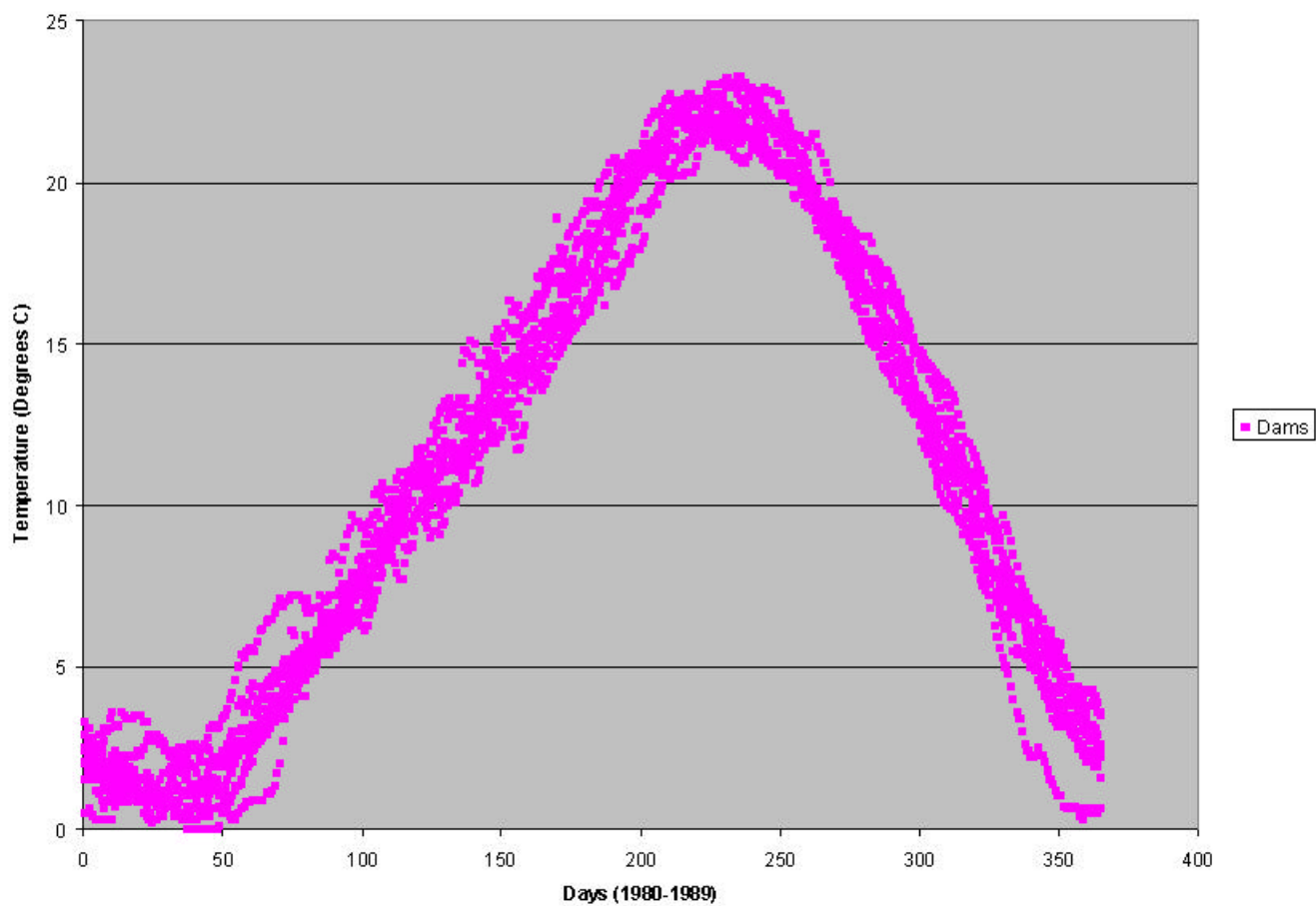
Simulation of Water Temperature at Ice Harbor Dam 1980-1989 with no Dams in Place



Characterization of Existing Conditions

- Use the RBM-10 Model to simulate existing conditions.
 - Compare apples to apples
 - Fill in data gaps

Simulation of Water Temperature at Ice Harbor Dam 1980-1989 with Dams in Place



Identify and Evaluate Heat Sources or other Causes of Increased Temperature

- Point Sources
- Dams
- Tributaries
- Irrigation Return Flows
- Run RBM10 for Each Source

Quantify Loading Capacity

Use the loads from the RBM10 simulations of natural or site potential conditions.

Allocate Loads

- Use RBM10 for “far field” Waste Load Allocations
- Further adjust loads if necessary to achieve WQS at the edge of the mixing zone.

Simulation of Water Temperature at Ice Harbor Dam 1980-1989 with and without Dams in Place

